Workflow: Maintenance and Asset Care

Toolkit 7.1
Reliability Approach to Asset Care

target audience

Farm managers, supervisors, equipment operators, and contractors.

what it is

Effective and safe farming operations depend on the availability and effectiveness of equipment when required. This can only be achieved if the asset is used for its intended purpose by a skilled operator, while being properly cared for. This toolkit deals with establishing a culture of equipment ownership and care to ensure that the asset is properly maintained throughout its expected life cycle.

The above requires a maintenance plan or strategy for the farm that should consider how critical each piece of equipment. Refer to Toolkit 7.2 - Critical Equipment. The maintenance strategy for a critical machine will be different to that of a non-critical machine. For a critical machine, the strategy will be to avoid downtime or breakdowns by using planned or preventative maintenance, whilst for a non-critical machine the strategy could well be to "run-to-failure".

why it is important

Proper care of the asset ensures that the investment in appropriate equipment is optimised. The availability and effectiveness of the asset ensures that activities can be safely completed on time without damage to product or other pieces of equipment. Proper care also avoids "over care", which could result in unnecessary additional costs.

In a farming environment, crop spraying is a good example. Both the tractor and the sprayer should be available and well maintained to ensure that crops are sprayed in time and using the correct settings and method. Should the timing be right, but either the tractor or the sprayer fails, it could have potentially negative consequences e.g., spraying too late, and thus risking poor efficacy, fruit quality being compromised, exceeding maximum residue levels, and incurring additional costs (renting a subcontractor).

success factors

The success factors for reliability approach to asset care are:

- **Implement a maintenance and asset care strategy:**
  - Deciding which equipment will be bought/rented vs sub-contracted?

- Asset life-cycle management including an asset disposal plan.
- Training and skills development on how to operate and maintain the asset.
- Service plan management (compliance to prescribed maintenance schedules).
- Maintenance and service records, and warranty management.
- Safety management - safe operations.
- Asset performance management, e.g., operating cost per ton, fuel, etc.

➢ **Ownership by the Operator** – When the operator is given clear and personal responsibility ("ownership") his/her motivation to care for that asset is much higher than if there is only general, shared responsibility.

➢ **Basic Clean, Inspect, Tag (CIT) practices** – Implement a basic routine (SOP) where operator's clean equipment routinely, inspect it at the same time based on a check list, and tag (formally note) problems.

➢ **Basic problem solving for equipment failure/downtime** – Train operators to go through a set of problem solving and troubleshooting procedures. This promotes the ability of solving problems at the right level before escalating the problem unnecessarily.

➢ **Basic Facilities** – Establish well organised (5S) basic facilities, e.g., sheds, basic workshop area lubrication pit, tools etc. These facilities do not need to be expensive or very fancy, but they should be well organised, fit-for-purpose, and generate a sense of pride.

➢ **Availability of spares** – Ensure that the spares you require are available. Decide which spares you need to stock yourself, and which are reliably available at suppliers.

execution steps

1. Leadership must accept the principle of a reliability approach to asset care including the concept of operator ownership.
2. Leadership must develop and implement a basic asset care strategy. What do we leave to the supplier/agent? When do we pay for maintenance? When do we repair ourselves? etc.
3. Establish clear responsibilities between operators (cleaning, lubrication, basic inspections), maintenance specialists, and service providers.
4. Train all operators the basic operating routines. Multi-skill to reduce the risk of operator unavailability.
5. Follow the services plan rigorously and do regular CIT (clean, inspect, tag) on critical equipment to proactively identify potential breakdowns.
6. Complete the administration to update services records, manage warrantees and record operator training.
7. Investigate major equipment breakdowns and all equipment/operating safety incidents, do root cause analysis where required, and re-establish SOPs to prevent reoccurrence.

assessment questions

Please Note: There is no minimum / maximum amount of questions you can add

1.	Has the Leadership accepted a Reliability approach to Asset Care?
2.	Are all assets (equipment, infrastructure, buildings) well maintained?
3.	Are basic maintenance routines in place for cleaning, inspecting, and lubricating?
4.	Has an Asset Care Strategy been developed for the farm/company?
5.	Have Asset Care responsibilities been clarified, including the roles of Service providers and Operators?
6.	Is there an asset library and are costs tracked per major asset?
7.	Do you analyse all major breakdowns to find root causes and solutions?

resources

1.	Seven steps to maintenance strategy by Paul Adams (August 9, 2019) Link: https://www.maintenanceandengineering.com/2019/08/09/seven-steps-to-maintenance-strategy/